

## Agrani Bank – Senior Officer Recruitment Exam – MCQ Maths – Solutions

**1. On selling 17 balls at Tk720, there is a loss equal to the cost price of 5 balls. The cost price of a ball is: 45/50/55/60**

Suppose, the cost of a ball is = p.

So, the cost of 17 balls = 17p

& the cost of 5 balls = 5p

We know: cost-loss = selling price.

Here,

Selling price of 17 balls = 17p-5p = 12p = 720 tk

So, p = 720/12 = 60 tk. ans.

**2. Two-fifth of one-fourth of three-seventh of a number is 15. What is the half of the number? 175/157/75/57**

$[2/5] \times [1/4] \times [3/7] \times p = 15$

$p = 15 \times 7 \times 4 \times 5 / [2 \times 1 \times 3] = 350$

$p/2 = 350/2 = 175$ . ans.

**3. A gas tank is 1/5th full and requires 32 gallons more to make it 3/7th full. What is the capacity of the tank? 120/135/140/145 gal.**

$[3/7] \times \text{capacity} - [1/5] \times \text{capacity} = 32 \text{ gal.}$

$[3/7 - 1/5] \times \text{capacity} = 32 \text{ gal}$

Capacity =  $32 \times 35/8 = 140 \text{ gal.}$  ans.

**4. A and B can do a piece of work in 9 days, B and C in 12 days, A and C in 18 days. If all of them work together, then how much time will they take to finish the same work? 6/8/7/10**

A&B can do in 1 day = 1/9 of the work

B&C can do in 1 day = 1/12 of the work

C&A can do in 1 day = 1/18 of the work

-----[add]-----

2(A&B&C) can do in 1 day =  $1/9 + 1/12 + 1/18$   
 $= 9/36 = 1/4$

A&B&C can do in 1 day = 1/8 of the work

A&B&C can do the entire work in =  $1/(1/8) = 8$  days. ans.

**5. A family had provision of food for 15 days. After 5 days 8 guests came and the provision lasted 6 days. How many are the members of the family? 10/12/11/13**

Suppose,

The number of members in the family is = p.

p persons can consume in 15 days = 1 or full provision.

1 person can consume in 1 day = 1/15p of full provision.

According to the question:

$5p/15p + 6(p+8)/15p = 1$

$1/3 + (2p+16)/5p = 1$

$10p = 6p+48$

$4p = 48$

$p = 12$ . ans.

**6. Two motorists drove their cars at a speed of 45 km per hour and 50 km per hour respectively. One car took 10 minutes longer than the other to travel a distance. Find the distance travelled. 15/12/18/20 km**

Suppose the distance is p km

$p/45 - p/50 = 10/60$

$p/450 = 1/6$

$p = 450/6 = 75$ . ans. [not available in the options]

**7. In a class 75% passed in English, 60% in Mathematics and 25% failed in both the subjects. What is the percentage who passed in both subjects? 50/55/60/45 %**

Passed in both subjects =  $100\% - 25\% = 75\%$

Passed in both subjects =  $(75+60)\% - 75\% = 60\%$ . ans.

**8. A person makes a profit of 10% on 25% of the quantity and a loss of 20% on the rest of the quantity. What is the gain or loss in percentage on the whole? 10/12/12.5/20 %**

Gain or loss on the whole =  $+10\% \times 25\% - 20\% \times 75\% = +2.5\% - 15\% = -12.5\% = 12.5\% \text{ loss.}$  ans.

**9. Increasing the original price of an item by 10%, then decreasing by 20% and then again increasing the price by 10% is equivalent to: 4.4% increase / original price / 3.5% decrease / 3.2% decrease**

Net effect

$= (1+0.10)(1-0.20)(1+0.10) - 1$

$= 0.968 - 1 = -0.032 = 3.2\% \text{ decrease.}$  ans.

**10. In a row of trees, a tree is 7th from the left and 14th from the right end. How many trees are there in the row? 18/19/20/21**

According to the question, there are 6 trees to the left and 13 trees to the right of that particular tree. So, there are  $6+1+13 = 20$  trees.  
ans.

**11. The average age of 12 children is 15 years. If another child comes the average age comes to 13. What is the age of the new child? 5/7/9/11 years**

Age of the new child =  $(13 \times 13) - (12 \times 15) = 169 - 180 = -11$  years. [Error in the question]

**12. A train 150 meters long and running at a speed of 60 km per hour takes 30 seconds to cross a bridge. What is a length of the bridge? 350/450/500/650 meter**

Speed at mps =  $60 \times 5/18 = 50/3$

Length of the bridge =  $30 \times 50/3 - 150 = 500 - 150 = 350$  meters. ans.

**13. A dishonest shopkeeper professes to sell ghee at his cost price. But he uses a false weight of 950g for a kilogram. His gain percentage is: 4/5.26/3/4.5**

Solution:

Gain percentage =  $[(1000-950)/950 \times 100]\%$   
=  $100/19\% = 5.26\%$ . ans.

**14. A sum of money at simple interest amounts to Tk2800 in 2 years and to Tk3250 in 5 years at a rate of: 4/6/3/5 %**

Principal + 5years interest = 3250

Principal + 2years interest = 2800

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3years interest = 450

1 year's interest = 150

2years' interest =  $150 \times 2 = 300$

Principal =  $2800 - 300 = 2500$

Rate of interest =  $[(150/2500) \times 100]\% = 6\%$ . ans.

**15. A dog takes 4 leaps for every 5 leaps of a hare but 3 leaps of the dog is equal to 4 leaps of the hare. Compare their speeds:**

16:15 / 18:17 / 19:18 / 20:19

Suppose, the dog can cover a distance of  $p$  meters in a leap.

So, the dog can cover a distance of  $3p$  meters in 3 leaps.

So, the hare can cover a distance of  $3p$  meters in 4 leaps

So, the hare can cover a distance of  $3p/4$  meters in a leap.

In 4 leaps, the dog can cover =  $4p$  meters

In 5 leaps, the hare can cover =  $5 \times 3p/4 = 15p/4$  meters

Ratio of speeds = dog : hare =  $4p : 15p/4 = 16:15$ . ans.

**16. In a mixture of 50 liters, milk and water are in the ratio of 3:2. How much water would be added to the mixture to make the ratio of the two equal? 14/12/10/8 liters**

Milk in the mixture =  $50 \times 3/(3+2) = 30$  liters,

water in the mixture =  $50 \times 2/(3+2) = 20$  liters.

Required quantity of water to be added =  $30 - 20 = 10$  liters. ans.

**17. If  $x$  is 90% of  $y$  then what percent of  $x$  is  $y$ ? 1.11/101.1/11.1/111.1**

$x = 0.9y$

$y = x/0.9 = 1.111x = (111.1/100) \times x = 111.1\%$  of  $x$ . ans.

**18. A room of size 5m×3m and height 3m requires walls and ceiling painting. What is the area to be painted? 63/70/64/90 sq.m**

Total area of (the ceiling + four walls) =  $5 \times 3 + 2 \times 5 \times 3 + 2 \times 3 \times 3 = 15 + 30 + 18 = 63$  sq.m. ans.

**19. The length and breadth of a square are increased by 40% and 30% respectively. The area of the resulting rectangle exceeds the area of the square by: 50/76/82/41 %**

Increase in area =  $[(1.4 \times 1.3 - 1) \times 100]\% = 82\%$ . ans.

**20. A husband and wife have six married sons. Each of them has four children. The total number in the family is: 32/34/36/38**

Total members = husband + wife + 6sons + 6wives +  $6 \times 4$  children = 38. ans.

**21. A father is 61 and his son is 16. In how many years will the father be twice as old as his son?**

**17/19/22/25**

$$2(16+p) = 61+p$$

$$32+2p = 61+p$$

$p = 61-32 = 29$ . ans. [not available among the options]

**22. A and B together have Tk1210. If 4/15 of A's amount is equal to 2/5 of B's amount. What is the amount B has? 484/480/478/470 tk**

B's amount =  $p$ , A's amount =  $(1210-p)$ .

So,

$$4(1210-p)/15 = 2p/5$$

$$3p = 2420-2p$$

$$5p = 2420$$

$$p = 484$$
. ans.

**23.  $5^{-3} + 5^{-3} + 5^{-3} + 5^{-3} + 5^{-3} = ?$   $5^{-2}/25^{-3}/25^{-15}/5^{-15}$**

$$5^{-3} + 5^{-3} + 5^{-3} + 5^{-3} + 5^{-3}$$

$$= (5^{-3})(1+1+1+1+1)$$

$$= (5^{-3}) \times 5$$

$$= 5^{(-3+1)}$$

$$= 5^{-2}$$
. ans.

**24. If two angles are said to be complementary angles and one angle is  $52^\circ$  then the other angle is of  $100^\circ/68^\circ/128^\circ/38^\circ$**

Info: sum of two complementary angles is  $90^\circ$ .

So, the other angle is  $= 90^\circ - 52^\circ = 38^\circ$ .

**25. How many degrees are between the hands of a clock at 3:30?  $105^\circ/90^\circ/75^\circ/70^\circ$**

$$\text{Angle} = |(60 \times 3 - 11 \times 30)| \div 2 = 75^\circ$$
. ans.

**26. An angle which is less than  $360^\circ$  and greater than  $180^\circ$  is classified as: acute/reflex/obtuse/adjacent angle**

Info:

$$0^\circ < \text{angle} < 90^\circ = \text{acute}$$

$$90^\circ < \text{angle} < 180^\circ = \text{obtuse}$$

$$180^\circ < \text{angle} < 360^\circ = \text{reflex}$$
.

Ans: reflex.

**27.  $50^7 \times 20^7$  is  $10^x$  times larger than  $1 \times 10^8$ , where  $x$  is: 13/6/21/29**

$$50^7 \times 20^7 = (50 \times 20)^7 = (1000)^7$$

$$= (10^3)^7 = 10^{21} \text{ is greater than } 10^8 \text{ by}$$

$$(10^{21} \div 10^8) = 10^{(21-8)} = 10^{13} \text{ times.}$$

So, the value of  $x$  is 13. ans.

**28. What is 200% of 0.010?**

**0.0002/0.002/0.2/0.02**

$$0.010 \times 200\% = 0.010 \times 200/100$$

$$= 0.020 = 0.02$$
. ans.

**29. If  $2x+y=7$ , and  $x-y=2$ , then  $x+y = ?$  6/4/5/3**

$$2x+y = 7$$

$$x-y = 2$$

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$$3x = 9$$

$$x = 3$$

$$3-y = 2$$

$$y = 3-2 = 1$$

$$x+y = 3+1 = 4$$
. ans.

**30. For what value of  $x$  is  $8^{(2x-4)} = 16^x$  ? 2/3/4/6**

$$8^{(2x-4)} = 16^x$$

$$\text{or, } (2^3)^{(2x-4)} = (2^4)^x$$

$$\text{or, } 2^{(6x-12)} = 2^{4x}$$

$$\text{or, } 6x-12 = 4x$$

$$\text{or, } 2x = 12$$

$$\text{or, } x = 6$$
. ans.

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